UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/950,003	09/12/2001	Pasqua Oreste	MARGI 27 P1	9777

23599 7590 05/17/2004

MILLEN, WHITE, ZELANO & BRANIGAN, P.C.
2200 CLARENDON BLVD.
SUITE 1400
ARLINGTON, VA 22201

EXAMINER	
KRISHNAN, GANAPATHY	
ART UNIT	**PAPER NUMBER**
1623	

DATE MAILED: 05/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/950,003	ORESTE ET AL.	
	Examiner	Art Unit	
	Ganapathy Krishnan	1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34,38-53,56-62,64,66,68 and 70* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *38-53 and 56-62* is/are allowed.

6)☒ Claim(s) *1-34,64,66,68 and 70* is/are rejected.

7)☐ Claim(s) _ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The after final amendment filed April 7, 2004 has been received, entered and carefully considered. The following information provided in the amendment affects the instant application:

1. Claims 35-37 and 54-55 have been canceled.

Claims 63, 65, 67 and 69 depend from cancelled claim 35 and have been withdrawn from consideration. Claims 64, 66, 68 and 70, which depend from claim 38, have been rejoined.

Claims 1-34, 38-53, 56-62, 64, 66, 68 and 70 are pending in the case.

The text of those sections of Title 35, U. S. Code not included in this action can be found in a prior Office action.

The finality of the previous office action is withdrawn and the following rejections are made of record.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 1-10 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-10 of copending Application No. 10/240606 ('606 application).

Instant claim 1 of the instant is drawn to a N-deacetylated N-sulfated derivative of a K5 polysaccharide epimerised at least to 40% of iduronic acid with respect to the total uronic acids, having a molecular weight of from 2000 to 30000 D, a content in chains with high affinity for ATIII of from 25% to 50% by weight and an anticoagulant and antithrombotic activity expressed as HCII/Anti-Xa ratio between 1.5 and 4. The same recitation is also seen in claim 1 of the copending '606 application.

Instant claims 2 and 3 are drawn to the derivative with molecular weights between 4000 and 8000D and molecular weights between 18,000 and 30,000 D respectively. Claims 2 and 3 of the copending '606 application also recite the same molecular weight limitations.

Instant claim 4 is drawn to a process for preparation of the derivatives of K5 polysaccharide comprising the steps of preparation of the K5 polysaccharide, N-deacetylation and N-sulfation, C5 epimerization of D-glucuronic acid to L-iduronic acid, oversulfation, selective O-desulfation, selective 6-O sulfation and N-sulfation wherein the epimerization is performed with glucuronosyl C5 epimerase in the presence of divalent cations. Instant claims 5-10 further recite process limitations drawn to specific divalent cations, the buffer used, the time and temperature in the epimerization step. These same limitations are also recited in claims 4-10 of the copending '606 application.

Thus claims 1-10 of the instant application and claims 1-10 of the copending '606 application are claiming the same invention as seen by the identical recitations.

This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 66 and 70 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for treating thrombosis, does not reasonably provide enablement for prevention of thrombosis. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

A conclusion of lack of enablement means that, based on the evidence regarding each of the factors below, the specification, at the time the application was filed, would not have taught one skilled in the art how to make and/or use the full scope of the claimed invention without undue experimentation.

(A) The breadth of the claims
(B) The state of the prior art
(C)The level of one of ordinary skill
(D) The level of predictability in the art
(E) The amount of direction provided by the inventor
(F) The existence of working examples
(G) The quantity of experimentation needed to make or use the invention based on the content of the disclosure.

The breadth of the claims

Claims 66 and 70 are drawn to method of preventing thrombosis by administering an effective amount of the glycosaminoglycan of formula I and to a method wherein the effective amount is administered in a pharmaceutical composition containing 5 to 100 mg of the said glycosaminoglycan. The scope of the claim is seen to include the

administration of the said compound and composition to a healthy mammal, and subsequent exposure to conditions that would cause thrombosis and preventing thrombosis from manifesting itself in said mammal so exposed by administering the glycosaminoglycan of claim 38.

The state of the prior art

The examiner notes that the art cited by the applicants (US 6162797 and WO 98/42754) mention methods for treating thrombosis in mammals. However, there is no disclosure of potential thrombosis preventive activity of compounds seen in the prior art. The prior art appears to be silent with regard to preventive procedures recognized by skilled artisans in this field.

The level of one of ordinary skill

The skilled artisan in this field is that of an MD for therapeutic administration and/or a Ph.D. skilled in the development of therapeutics.

The level of predictability in the art

The examiner acknowledges the probability and predictability that administration of the said compounds would have a reasonable expectation of success for treating thrombosis but not for preventing thrombosis. There is not seen sufficient data to substantiate the assertion that thrombosis may be prevented by the use of the compound/composition instantly claimed nor does the art provide guidance to correlate the type of data presented in the instant case to a degree of efficacy that encompasses prevention.

The amount of direction provided by the inventor

The instant specification is not seen to provide enough guidance that would allow a skilled artisan to extrapolate from the disclosure and the examples provided to enable the use of the active agents to prevent thrombosis. The specification also fails to direct the skilled artisan in correlative prior art procedures which might provide the basis for an advance in treating thrombosis which induces prevention of the said condition.

The existence of working examples

The working examples set forth in the instant specification are drawn to data that show the antithrombotic characteristics of the said compounds. The skilled artisan in this field would not extrapolate the preventive efficacy of the compounds claimed or the use of the same in preventive methods from the example provided. The disclosure does not show, teach or enable methods for the prevention of thrombosis.

The quantity of experimentation needed to make or use the invention based on the content of the disclosure

Indeed, in view of the information set forth, the instant disclosure is not seen to be sufficient to enable the prevention of thrombosis with the compounds set forth in the claims. A skilled artisan would not extrapolate the preventive efficacy from the results disclosed for the examples set forth in the instant specification.

Claims 4-34, 64 and 68 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites N-sulfation twice in the process sequence as instantly claimed. It is not clear why the same step is performed twice or if applicants intend N-desulfation. The same recitation is also seen in claims 14 and 17.

The term "controlling" in claim 64 is a relative term that renders the claim indefinite. The term "controlling" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claims 5-13, 15-16, 18-34 and 68, which depend from the rejected base claims, are also rendered unclear/indefinite for the same reasons.

Conclusion

1. Claims 1-34, 64, 66, 68 and 70 are rejected.

3. Claims 38-53 and 56-62 drawn to the non-obvious glycosaminoglycans of structural formula I are allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ganapathy Krishnan whose telephone number is 571-272-0654. The examiner can normally be reached on 8.30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O. Wilson can be reached on 571-272-0661. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GK

JAMES O. WILSON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600